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# (12) United States Patent Judy et al.

### (54) INERTIAL SENSOR

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### Related U.S. Application Data

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U.S. PATENT DOCUMENTS

(56) References Cited

6,291,875 B1 9/2001 Clark

6,370,954 B1\* 4/2002 Zerbini et al. ........... 73/514.01

### \* cited by examiner

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### (57) ABSTRACT

In an inertial sensor, a mass is supported by a number of mass support structures positioned within an inner periphery of the mass. The mass support structures are affixed to a substrate by at least one anchor positioned proximate to the mass' center of mass. A number of sensing fingers are affixed to the mass support structures.

### 9 Claims, 13 Drawing Sheets

